U.S. EPA Region 5 Superfund Greener Cleanup Implementation Strategy

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3-16-12

Date

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I. Introduction

Region 5 issued its Interim Greener Cleanup (GC) Policy on November 12, 2009. The Superfund Greener Cleanup Implementation Strategy (the Strategy) summarizes the steps that will be taken by the Region 5 Superfund program to implement the Interim GC Policy in its cleanup programs. The Strategy is broken into five sections: Overarching Greener Cleanup Activities (Section II); Brownfields Program (Section III); Removal Program (Section IV); Remedial Program (Section V); and Best Management Practices (Section VI).

II. Overarching Superfund Greener Cleanup Activities and Practices

Following is a discussion of GC activities and practices that will be or have already been implemented across the Region 5 Superfund program:

1. GC Training

GC training will be provided for managers, Remedial Project Managers (RPMs), On-Scene Coordinators (OSCs), Brownfields Project Managers/Officers, and the Region 5 states. This training will provide an overview of national and regional GC efforts that are underway. The training will also include a discussion about regional and national Clean Diesel programs that are sponsored by Unites States Environmental Protection Agency. The Region 5 Superfund GC Coordinator will coordinate this training, with input and assistance from the appropriate persons in the Brownfields, Removal, and Remedial programs, as well as the Air and Radiation Division, which oversees Clean Diesel programs.

This training will be completed by December 31, 2012.

2. Contractor Collection and Reporting of Energy Usage Data, Water Usage Data, and Quantity of Materials Generated, Used, Reused, Recycled, and Disposed

Region 5 will require Superfund contractors performing cleanups for U.S EPA to collect and report, as part of their required periodic reporting, energy usage data, water usage data, and quantity of materials generated, used, reused, recycled, and disposed. The Region 5 Superfund GC Coordinator will coordinate this effort with the appropriate persons in the contract procurement branch and the contracting officers and project officers for the Superfund cleanup contracts. This will be implemented as the various cleanup contracts are rebid by the insertion of GC language.

3. Insertion of GC Language, Including No Idling Restrictions, in Superfund Cleanup Contracts

Region 5 will insert GC language, including no idling restrictions, into Superfund contracts as they are rebid. The Region 5 Superfund GC Coordinator will coordinate this effort with the appropriate persons in the contract procurement branch and the contracting officers and project officers for the Superfund cleanup contracts.

4. Superfund Environmental Footprint Analyst

The Superfund Division will establish an Environmental Footprint Analyst position. This person will review any Environmental Footprint Analyses submitted by Potentially Responsible Parties (PRPs) and grantees, and, as needed, perform Environmental Footprint Analyses at fund-lead sites.

5. On-Line GC Training

Region 5 will develop an on-line GC training which will be available to all interested parties, including regional staff, states, PRPs, grantees, and the public. The Superfund GC Coordinator will coordinate the development and posting of this training with the appropriate regional personnel.

This training will be available on-line by March 31, 2013.

6. Review and Modification

Starting in 2013, the Superfund Division will annually review and modify, as appropriate, the Strategy.

III. Brownfields Program

In the Region 5 Brownfields program, four GC actions will be taken: reporting of energy, water, and materials usage by grantees, inclusion of GC factors in the Analysis of Brownfields Cleanup Alternatives (ABCA) documents, insertion of specific language in the "Congratulations" letter sent to all new grantees, and coordination with Region 5 states to include GC language and use of Best Management Practices (BMPs) in their voluntary cleanup programs.

1. Reporting of Energy, Water and Materials Usage by Grantees

Starting with the 2013 grant cycle, all cleanup and revolving loan fund grantees performing cleanup actions will be requested to report, as part of their required final report, energy usage, water usage, and quantity of materials generated, used, reused, recycled, and disposed.

2. Inclusion of GC Evaluation Factor in ABCAs

Starting with the 2013 grant cycle, grantees will be requested to include a GC evaluation factor in the ABCA The GC evaluation factor will consider the extent to which the alternatives reduce

greenhouse gas emissions, reduce energy use and/or employ alternative energy sources, reduce volume of water used and wastewater generated/disposed, reduce volume of materials taken to landfills, and recycle and reuse materials generated during the cleanup process. The GC evaluation factor will not in any way override the effectiveness criterion for the ABCA. The GC evaluation will be an eligible cost under the grant.

3. Insertion of GC Language in "Congratulations" Letters

Starting with the 2012 grant cycle, the following language shall be inserted in every "Congratulations" letter sent to new grantees:

> "Please note that for (cleanup/RLF) grants, the money you spend analyzing various forms of renewable/alternative energy and/or other GC measures for use on a cleanup site can be an eligible cost, which can be charged directly or count toward your required cost share for the cleanup grant. Regarding purchase/construction/installation costs for the renewable/alternative energy and/or other GC measures, the costs would be eligible costs provided that the GC measures are part of the remedy for the site. For example, if solar panels were used to run a gas collection system for a landfill that was capped as part of the cleanup using the (cleanup grant/RLF) funds, the money spent purchasing/constructing and installing the solar panels would be an eligible cost. If solar panels were installed on a building that is on the same property but not part of the cleanup action being funded under your cooperative agreement with EPA, the installation and construction costs for the solar panels would not be an eligible cost. If you intend to purchase equipment and/or materials associated with renewable/alternative energy and/or other GC measures as part of your grant, your project budget would need to reflect this."

4. Working with States to Include GC Language and Use of BMPs in Voluntary Cleanup Programs

Region 5 will work with the states to include GC language, including no idling restrictions, and the use of BMPs in the state voluntary cleanup programs. The Superfund GC coordinator will coordinate this effort, which will begin in calendar year 2012.

IV. Removal Program

The following actions are mandatory at all fund-lead removal actions:

1. Recycling at all removal sites which includes, at a minimum, consumables (paper, plastic aluminum, glass, etc.), scrap, and re-use options (i.e. drum reconditioning);

2. Idling prohibitions for vehicles and heavy equipment;

3. Double-sided printing on 100% post consumer recycled paper; and

4. Documentation of all green activities including energy usage data, fuel type usage, water usage data (including drinking water), and quantities of materials generated, used, reused, recycled, and disposed.

Additionally, Superfund Technical Assistance and Response Team (START) contractors will be required to comply with the provisions in Appendix A of this Strategy. Mandatory practices for Emergency Response and Removal Services (ERRs) contractors will be established prior to the next ERRS contract re-bid and similarly attached to this Strategy.

V. Remedial Program

In the Region 5 Remedial program, five GC actions will be taken:

1. Remedial Investigation and Feasibility Study (RI/FS)

RPMs should consider alternatives in the RI/FS that include opportunities for reducing the environmental footprint of Remedial Design and Remedial Actions (RD/RA) and long-term site management.

2. Implementation of RD/RA

RPMs should consider opportunities to integrate green remediation strategies into a remedy. BMPs introduced during construction should continue during remedy operation.

3. Five Year Review (FYR)

RPMs should, to the extent possible, optimize and green remedies during FYRs. The operational phase of a remedial action provides significant opportunities to reduce the onsite and offsite footprint of the cleanup. Optimization during FYRs should include contaminant capture and/or treatment systems, sampling and monitoring networks, frequency of sampling, and process monitoring to optimize chemical use.

4. Electronically Report GC Data

Project managers should, to the extent possible, require PRP and fund-lead contractors to electronically report, quantitative information on energy usage data, water usage data, and quantity of materials generated, used, reused, recycled, and disposed. To the extent possible, all monitoring data should be required to be submitted electronically. (Note: all Region 5 Superfund contracts are being updated to require summation of GC Data.) All electronically reported GC data should be submitted according to the Region 5 Electronic Data Deliverable (EDD) format.

5. Superfund Site Required Documents

Project managers should, to the extent possible, require that all PRP and contractor-developed reports, plans, and technical memos be submitted in an Adobe PDF electronic format. Project

managers should also, to the extent possible, only submit to the Superfund Data Management System, Adobe PDF electronic format versions of all required PRP and contractor-developed reports, plans, and technical memos. The electronic format preserves the original quality of documents including tables, drawing and figures for long-term access and reduces the use of paper.

VI. Best Management Practices

The Superfund Division will use the checklist in Appendix B to document standard BMPs that were considered, whether they were implemented or not, at removal and remedial cleanup sites. For Brownfields sites, until such time as a GC Standard or similar resource is established, the Superfund GC Coordinator will work with the states to incorporate the use of BMP lists into their voluntary cleanup programs. Further GC BMPs will be incorporated into this Strategy in the future.

RPMs and OSCs will fill out the checklist in Appendix B prior to beginning each phase of a cleanup action (site assessment; remedy selection/modification; cleanup design/optimization, cleanup implementation; and operation, maintenance and monitoring). This checklist shows applicable standard BMPs. It also shows which of those BMPs will be implemented and will list the reason if they are not being implemented. A copy of the completed form must be provided to the Region 5 Superfund GC Coordinator.

This procedure will be implemented starting on October 1, 2012.

Appendix A: START CONTRACT GREEN LANGUAGE

In efforts to enhance the environmental, societal, and economic benefits of federal cleanup programs, Region 5 promotes technologies and practices that are sustainable. The contractor shall explore and implement sustainable strategies, approaches, and applications in the performance of the requirements to:

1) Maximize sustainability;
2) Reduce energy and water use;
3) Promote carbon neutrality;
4) Reduce toxic air emissions;
5) Promote industrial material reuse and recycling; and
6) Protect and preserve the land.

Practices are subject to all applicable Federal, State, and Local laws, regulations, and legal policies. Contractors are encouraged to reduce or eliminate the environmental impact of their activities, increase the benefits from the performance of work for local communities, and maintain cost-effectiveness. The contractor shall present sustainable options and approaches in its plans, provide cost analyses for major options in its budgets, and maintain records of sustainable/green related activities. Alternatives considered but discarded due to costs, time, or other factors also may be reported.

Site Specific Reporting: Upon completion of work for a site, the contractor shall submit a *Final Site Report on Environmental Activities and Impact*, a completed "Environmentally Preferred General Field Practices Checklist" and any other relevant information on efforts to achieve sustainability.

Annual Reporting: At the end of the calendar year, the contractor shall submit an annual report, no longer than 10 pages in length, detailing the cumulative measures for site and office efforts within the previous 12-month period, and:

- Environmentally Preferred Purchasing efforts;
- Use of Energy and Water;
- Use of Biobased Materials;
- Use of EPA-Designated Recovered Materials;
- Solid Waste Prevention;
- Energy and Water Conservation;
- Use of Alternative Fuels;
- Training Efforts; and
- Goals

The following Practices are minimum standards that shall be applied to the maximum extent feasible to all services required under this contract unless site specific circumstances dictate otherwise. If the following standards are not utilized for cleanup actions, then a justification stating the specific circumstances shall be provided. A comprehensive set of greener approaches to site cleanup may be found at www.clu-in.org/greenremediation. Additional tools and technologies may be found at the following intranet site: www.epa.gov/oswer/greencleanups/index.html

Environmentally Preferred **General Field** Practices			
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N= Not Used	N/A= Not Applicable	**Comments Section** Justify in the comments when applicable BMPs are not used. Cost Analysis, when performed and applicable, is a reasonable justification.
Energy			
Use of Energy Efficient Equipment			
Computer Equipment (FEMP/Energy Star)			
Reduce Carbon Emissions from Transportation			
Use Internet Based Meetings/Conferences			
Maximize Carpooling			
Use of Local Labor/Suppliers (50 mile radius)			
No idling, except for extreme weather conditions			
Use of Alternative Fuels, if available within 10 miles			
Properly Inflated Tires			
Email Small Files (less than 8MB)			
Reusable Electronic Storage Media or the			
Water			
Use of Low Flow Sampling Pumps			
Waste			
Use of Local Recycling Programs			
Use of Rechargeable Batteries			
Direct Push Boring			
Materials			
Printing when Required			
Double-sided Printing			
100% post-consumer recycled paper			
Land & Ecosystems			
Minimize Disruption to Natural Vegetation			
Use of Non-invasive Investigation Techniques			
Environmentally Preferred			
Green Procurement			
Environmentally Preferred Vendors			
Green Lodging/Hotels			
Use of Green Laboratories			

Appendix A continued			
Environmentally Preferred **General Office** Practices			
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N= Not Used	N/A= Not Applicable	**Comments Section** Justify in the comments when applicable BMPs are not used. Cost Analysis, when performed and applicable, is a reasonable justification.
Energy			Comments
Use of Energy Efficient Equipment			
Programmable Thermostats			
CFL or LED lights on Equipment			
Heating, Cooling, & Fans (FEMP/Energy Star)			
Computer Equipment (FEMP/Energy Star)			
Reduce Carbon Emissions from Transportation			
Use Internet Based Meetings/Conferences			
Maximize Carpooling/ Public Transportation			
Use of Local Labor/Suppliers (50 mile radius)			
Email Small Files (less than 8 MB)			
Reusable Electronic Storage Media or the Cloud			
Water			
Use of Eco Friendly Toilets and Faucets			
Waste			
Reusable/Recyclable Packaging			
Minimize Packaging Material			
Recycle CFL and LED lights			
Use of Local Recycling Programs			
Use of Rechargeable Batteries			
Materials			
Printing when Required			
Double-sided Printing			
100% post-consumer recycled paper			
Use of Bio-Based Materials			
Bio-Based Ink			
Bio-Degradable Cleaning Products			
Environmentally Preferred			
Green Procurement			
Environmentally Preferred Vendors			
Purchase Supplies in Bulk			
Liquids in Concentrated Form			

Final Site and Annual Report on Environmental Activities and Impact

Greenhouse Gas Reduction Goal- 1% Annual reduction in GHG emissions

Source	Amount Used	Methane (CH_4)	Nitrous Oxide (N_2O)	Carbon Dioxide ($CO_{2)}$
Gasoline	X gallons			
Diesel	X gallons			
E-85	X gallons			
Electricity Office	X Kilowatts			
Natural Gas	X Therms			
Solid Waste	X lbs			
Other	X Unit of Measure			

Resources: **www.epa.gov/cleanenergy/energy-resources/calculator.html**
http://205.254.135.7/oiaf/1605/coefficients.html

Energy Consumption Goal- 4% Annual Reduction in Petroleum Use

	2011 KWH	2012 KWH	% Reduction
Kilowatts Used			
	2011 $MTCO_2$	2012 $MTCO_2$	
Total Emissions			

Energy Reduction Techniques:

Water Consumption Goal- 3% Annual Improvement in Water Efficiency

	2011 Gallons	2012 Gallons	% Reduction
Clean Gallons Used			
Grey Gallons (Reused)			

Water Reduction Techniques:

Waste Consumption Goal- 10% Annual Reduction in Waste

	2011 lbs	2012 lbs	% Reduction
Disposed			
Recycled/diverted/Reused			

Waste Reduction Techniques:

Example: Improved electronic document management processes, reduced printing of paper by X%.

**Provide other qualitative and quantitative efforts deemed important to sustainability, such as reduction in hazardous chemicals or use of lesser toxic chemicals.*

APPENDIX B:

STANDARD BEST MANAGEMENT PRACTICES (SBMP) CHECKLIST

Check if planning to use	Check if Not - Applicable	If neither box is checked explain why SBMP will not be used	Standard Best Management Practice (SBMP)
			Revegetate excavated areas and/or areas disrupted by equipment or vehicles as quickly as possible, using native vegetation if possible. Restore as close as possible to original conditions.
			Survey on-site buildings and infrastructure to determine material types and approximate quantities that could be reused or recycled and evaluate opportunities for on-site or local re-use and/or recycling.
			To the extent feasible, use compact fluorescent lighting (CFL) or LED lighting in all on-site equipment and properly recycle CFLs or LEDs.
			To the extent possible, use Energy Star appliances.
			Use programmable thermostats to minimize energy use.
			Develop a construction waste management plan that establishes a diversion goal, specifies processes for identifying and segregating contaminated and uncontaminated waste, state show/where waste will be reused and/or recycled and safely managed and tracked.
			Use biodegradable cleaning products.
			Reuse monitoring wells throughout investigations, remediation, and long-term monitoring.
			Reuse dedicated materials when performing multiple rounds of sampling of all matrices.
			Purchase materials in bulk quantities and packed in reusable/recyclable containers to reduce packaging waste.

			Purchase liquids in concentrated form to reduce shipping volumes and frequencies.
			Purchase equipment and materials locally when available.
			Consider local recycling program, requirements and regulations, and incorporate them into Site activities whenever possible.
			Prepare, store, and distribute documents electronically.
			Use paper with recycled content and use double-sided printing option when document must be printed.
			Include specific focus on green elements at meetings with all parties including clients, stakeholders, regulatory agencies, and consultants. Update project team if goals & responsibilities change.
			Integrate schedules to allow for resource sharing and fewer days of field mobilization.
			If possible, conduct work during appropriate seasons to reduce weather delays and additional heating/cooling demands.
			Utilize teleconferences rather than face to face meetings when feasible.
			Use local staff (including subcontractors) when possible to minimize resource consumption.
			Maintain vehicles on a regular basis such as tune-ups and proper tire inflation. Use green vehicle maintenance products such as biodegradable lubricants.
			Construct and maintain engineering controls such as earth dikes and swales to prevent upgradient surface flow into excavated areas.
			To the extent possible, plan for and segregate hazardous waste and non-hazardous waste.
			Recycle all non-usable/spent equipment/materials following completion of project.